CLAIMS

1-3. (Canceled)

4. (Amended) A ~~d~~Data storage apparatus ~~as claimed in claim 1~~ comprising at least one disk drive of a kind having a single port for the input and output of serial data, at least two disk drive controllers each having data transmit and receive paths connected in common to the single port, and means for switching control to either controller if the other should fail, wherein the receive paths of the controllers are connected to the respective controllers via a buffer.

5-8. (Canceled)

9. (New) A data storage apparatus comprising:

a serial ATA disk drive having a first serial data path for the input of serial data and a second serial data path for the output of serial data,

a first serial ATA disk drive controller having a first serial data path for the input of serial data and a second serial data path for the output of serial data,

a second serial ATA disk drive controller having a first serial data path for the input of serial data and a second serial data path for the output of serial data,

a first serial multiplexer with first and second inputs and an output;

a second serial multiplexer with first and second inputs and an output;

the output of the first serial multiplexer connectively coupled with the first serial data path of the serial ATA disk drive;

the second serial data path of the first serial ATA disk drive controller connectively coupled with the first input of the first serial multiplexer;

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the second serial data path of the second serial ATA disk drive controller connectively coupled with the first input of the second serial multiplexer;

the second serial data path of the serial ATA disk drive connectively coupled with the second input of the second serial multiplexer and with the first serial data path of the second serial ATA disk drive controller; and

the output of the second serial multiplexer connectively coupled with the first serial data path of the second serial ATA disk drive controller and with the second input of the first serial multiplexer.

10. (New) A data storage apparatus comprising:

a serial ATA disk drive having a first serial data path for the input of serial data and a second serial data path for the output of serial data,

a first serial ATA disk drive controller having a first serial data path for the input of serial data and a second serial data path for the output of serial data,

a second serial ATA disk drive controller having a first serial data path for the input of serial data and a second serial data path for the output of serial data,

a serial multiplexer with first and second inputs and an output;

a buffer with an input and first and second buffered outputs;

the output of the first serial multiplexer connectively coupled with the first serial data path of the serial ATA disk drive;

the second serial data path of the first serial ATA disk drive controller connectively

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coupled with the first input of the serial multiplexer;

the second serial data path of the second serial ATA disk drive controller connectively coupled with the second input of the serial multiplexer;

the second serial data path of the serial ATA disk drive connectively coupled with the input of the buffer;

the first output of the buffer connectively coupled with the first serial data path of the first serial ATA disk drive controller; and

the second output of the buffer connectively coupled with the first serial data path of the second serial ATA disk drive controller.

11. (new) A method for use with a data storage apparatus comprising at least one disk drive of a kind having a single port for the input and output of serial data, at least two disk drive controllers each having data transmit and receive paths connected in common to the single port, and means for switching control to either controller if the other should fail, wherein the receive paths of the controllers are connected to the respective controllers via a buffer, the method comprising the step of:

in the event of failure of a controller, switching control to the other controller.

12. (New) A method for use with a data storage apparatus comprising a serial ATA disk drive having a first serial data path for the input of serial data and a second serial data path for the output of serial data, a first serial ATA disk drive controller having a first serial data path for the input of serial data and a second serial data path for the output of serial data, a second serial ATA disk drive controller having a first serial data path for the input of serial data and a second serial data path for the output of serial data, a first serial multiplexer with first and second inputs and an output, a second serial multiplexer with first and second inputs and an output, the output of the first serial multiplexer connectively coupled with the first serial data path of the serial ATA disk

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drive, the second serial data path of the first serial ATA disk drive controller connectively coupled with the first input of the first serial multiplexer, the second serial data path of the second serial ATA disk drive controller connectively coupled with the first input of the second serial multiplexer, the second serial data path of the serial ATA disk drive connectively coupled with the second input of the second serial multiplexer and with the first serial data path of the second serial ATA disk drive controller; and the output of the second serial multiplexer connectively coupled with the first serial data path of the second serial ATA disk drive controller and with the second input of the first serial multiplexer, the method comprising the steps, performed in the event of failure of the first serial ATA disk drive controller, of:

connecting the first input of the second serial multiplexer with its output and disconnecting the second input of the second serial multiplexer with its output, and

connecting the second input of the first serial multiplexer with its output and disconnecting the first input of the first serial multiplexer with its output.

13. (New) A method for use with a data storage apparatus comprising a serial ATA disk drive having a first serial data path for the input of serial data and a second serial data path for the output of serial data, a first serial ATA disk drive controller having a first serial data path for the input of serial data and a second serial data path for the output of serial data, a second serial ATA disk drive controller having a first serial data path for the input of serial data and a second serial data path for the output of serial data, a first serial multiplexer with first and second inputs and an output, a second serial multiplexer with first and second inputs and an output, the output of the first serial multiplexer connectively coupled with the first serial data path of the serial ATA disk drive, the second serial data path of the first serial ATA disk drive controller connectively coupled with the first input of the first serial multiplexer, the second serial data path of the second serial ATA disk drive controller connectively coupled with the first input of the second serial multiplexer, the second serial data path of the serial ATA disk drive connectively coupled with the second input of the second serial

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multiplexer and with the first serial data path of the second serial ATA disk drive controller; and the output of the second serial multiplexer connectively coupled with the first serial data path of the second serial ATA disk drive controller and with the second input of the first serial multiplexer, the method comprising the steps, performed in the event of failure of the second serial ATA disk drive controller, of:

connecting the second input of the second serial multiplexer with its output and disconnecting the first input of the second serial multiplexer with its output, and

connecting the first input of the first serial multiplexer with its output and disconnecting the second input of the first serial multiplexer with its output.

14. (New) A method for use with a data storage apparatus comprising a serial ATA disk drive having a first serial data path for the input of serial data and a second serial data path for the output of serial data, a first serial ATA disk drive controller having a first serial data path for the input of serial data and a second serial data path for the output of serial data, a second serial ATA disk drive controller having a first serial data path for the input of serial data and a second serial data path for the output of serial data, a serial multiplexer with first and second inputs and an output, a buffer with an input and first and second buffered outputs, the output of the first serial multiplexer connectively coupled with the first serial data path of the serial ATA disk drive, the second serial data path of the first serial ATA disk drive controller connectively coupled with the first input of the serial multiplexer, the second serial data path of the second serial ATA disk drive controller connectively coupled with the second input of the serial multiplexer, the second serial data path of the serial ATA disk drive connectively coupled with the input of the buffer, the first output of the buffer connectively coupled with the first serial data path of the first serial ATA disk drive controller, and the second output of the buffer connectively coupled with the first serial data path of the second serial ATA disk drive controller, the method comprising the step, performed in the event of failure of one of the first and second serial ATA disk drive controllers, of:

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as for the serial multiplexer, connecting its input that is connectively coupled with the other of the first and second serial ATA disk drive controllers with its output; and

disconnecting its input that is connectively coupled with the failed serial ATA disk drive controllers with its output.

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